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PATENT TRADEMARK OFFICE

Docket No: 3158/0J019

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Hsien-Ying CHOU

Confirmation No.: 2789

Serial No.: 09/767,955

Art Unit: 2673

Filed: January 24, 2001

Examiner: PATEL, Nitin

For: AUTO-IMPROVING DISPLAY FLICKER METHOD

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RESPONSE TO OFFICE ACTION

December 31, 2002

BOX NON FEE

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Responsive to the Office Action dated October 2, 2002, reconsideration of the application is respectfully requested.

Claims 1, 5, 6, and 14 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,429,839 to *Sakamoto*, while claims 2-4, and 7-13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the same reference in view of U.S. Patent No. 5,731,843 to *Cappels*. These rejections are respectfully traversed.

U.S. Patent No. 6,429,839 to *Sakamoto* discloses a simple matrix type LCD apparatus which includes a liquid crystal display panel ("LCD panel 1), a light source, such as a cold cathode ray tube for illuminating the LCD panel, a LCD device driving circuit 3, a dividing circuit, a duty control circuit, a light source driving circuit, and an LCD controller. According to this reference, the LCD controller provides a display data signal DATA, and liquid crystal driving signals such as a display data transfer clock XCK, a scan start signal YD, a display data latch signal LP, and the like. The LCD device driving circuit outputs a driving voltage to the LCD panel based on the liquid crystal driving signals. The dividing circuit divides the frequency of the display data latch signal LP by a division-number N that is an integer greater than zero. The duty control circuit changes an ON duty ratio of the frequency-divided signal from the dividing circuit using the frequency of the frequency-divided signal as a reference frequency. The light source driving circuit turns ON/OFF the light source based on the ON duty ratio set by the duty control circuit (see col. 6, lines 18-44).

Set forth on page 2, page 2, paragraph 3 of the Office Action is the statement that:

“Sakamoto shows an auto-improving display flicker method Detecting the display; flicker level and producing a detection voltage; comparing the detection voltage with a predetermined voltage and automatically switching to a predetermined display flicker processing technique if the detection voltage is greater than the predetermined voltage (In Col. 7 lines 54-67 to Col. 8 lines 1-15).”

However, *Sakamoto* clearly describes that flicker in the display is eliminated by a dividing circuit to obtain another duty cycle, thereby avoiding flicker caused by “beating” between the back light and the LCD display (see the Abstract; and see col. 2, line 52 to col. 3, line 8). *Sakamoto* also states that flicker in the display can be reduced by setting a division number N at a value which satisfies the expression $-1 \leq \{(N/A)-2\} \leq 1$.

In contrast, independent claim 6 of the present invention calls for a comparator that is used to detect the relative amplitude change of a detection voltage (i.e., a current inversion signal voltage) when performing displays that may cause flicker within the LCD display itself. In accordance with this, independent claim 1 calls for automatically switching to another inversion technique as flicker occurs (see line 14 beginning with “The signals are subjected to the display circuit 4 so as to..., such as an adjustable resistor, capacitor, MOS, or FET.” of the specification and Fig. 2). *Sakamoto* simply fails to teach these limitations.

U.S. Patent No. 5,731,843 to *Cappels* relates to an apparatus and method for automatically adjusting a pixel sampling clock frequency and phase of a video display to match the frequency and phase of a pixel clock used to generate an incoming video signal being received by the video display. According to this reference, voltage transitions are detected

between pixel intensities, in a video signal. The voltage transitions are compared with pixel sampling clock pulse signals of the video display in order to correctly match the frequency and phase of the video signal, and thus produce a more stable and noise-free image on the video display (see *Abs.*).

Put differently, *Cappels* also describes a comparator, but teaches the generation of a hit signal to detect whether or not a pixel sampling clock frequency and phase of a video display match the frequency and phase of a pixel clock that is used to generate an incoming video signal received by the video display (see *Abs.*). As taught by this reference, if the two frequencies and phases are not matched, the signal from Data taken line 116 in Fig. 5 is re-synchronized with the pixel sampling clock, thereby eliminating any jitter effect (see col. 5 Lines 23-67 to col. 6 entirely, and col. 7, lines 33-34).

However, this reference fails to cure the deficiency of the *Sakamoto* patent. Specifically, *Cappels* fails to teach a comparator that is used to detect the relative amplitude change of a detection voltage (i.e., a current inversion signal voltage) when performing displays that may cause flicker within the LCD display itself, as set forth in independent claim 6, or the step of automatically switching to another inversion technique as flicker occurs, as set forth in independent claim 1.

In sum, *Sakamoto* and *Cappels* both use a different approach for remedying the effects associated with different kinds of flicker than the apparatus and method set forth and claimed in independent claims 1 and 6 and hence, whether considered independently or in

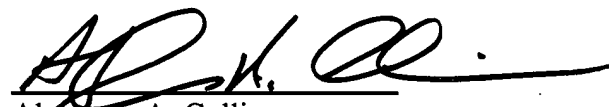
combination, fail to teach the present invention as claimed. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested

In view of the patentability of independent claims 1 and 6 for the reasons above, dependent claims 2-4, 7-14 are also patentable over the cited references.

In light of the foregoing remarks, this application should be in condition for allowance. Early passage of this case to issue is respectfully requested. However, if there are any questions regarding this response, or the application in general, a telephone call to the undersigned would be appreciated since this expedite the prosecution of the application for all concerned.

Dated: December 31, 2002

Respectfully submitted,



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